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REMARKS

In the last Office Action, the claims were rejected as obvious over the U.S. patent to Topchiasvili in view of the patents to Takahashi and Holloway. Some claims are rejected as above and further in view of the U.S. patent to Dorris.

The Examiner's attention is first of all respectfully directed to the official statement of the U.S. Department of Energy, that after 20 years long development, high temperature superconducting wires have not been yet on an open market. An application of a workable high temperature superconducting wire in electrical motors, cables, and transformers would 5-10 time decrease their cost, weight and size-diameter, save up to 25% electrical energy worldwide and significantly advance the economy of the United States of America. It is therefore believed that the advancements in this area are of enormous importance.

Before the analysis of the prior art, it is believed to be advisable to explain the new features of the present invention as defined in claim 13, the broadest claim on file.

Claim 13 specifically defines that the sintered ceramic composite superconducting electric lead has a physical-chemical phase composition which includes first phase elements constituted by nano-size superconducting ceramic crystal grains which are correspondingly arranged with a-b crystallographic planes along a major direction of an electric current flux, second phase elements constituted by nano-size multi-oxide silicate glass films, and third phase elements constituted by nano-dopes and other nano-size impurity particles including non-superconductor ceramic crystals and grains. The first, second and third nano-size phase elements together form a three-dimensional superconducting nano-structure with a honeycomb-like three dimensional setting network in which the second and third phase elements are located in boundary areas of the first phase elements so as to cage and surround the first cage elements which are the nano-size superconductor ceramic crystal grains, while the second and the third phase elements are also nano-size elements.

The Examiner's statement that the patent to Topchiashvili discloses ultra-fine Ag particles which have nano size and read on dope particles of the invention is completely unfounded. It is respectfully submitted that ultra-fine Ag particles can be of any sizes within ultra-fine range, but not necessarily of nano-sizes, and the reference simply does not disclose this feature.

This reference also does not disclose the other features of the present invention, in particular other phase elements of nano sizes as well. The Examiner's attention is also directed to other specific features of claim 13. The reference does not disclose a sintered ceramic composite superconducting electric lead which has a physical-chemical phase composition with first phase elements constituted by nano-size superconducting ceramic crystal grains, second phase elements constituted by nano-size multi-oxide silicate glass films, third phase elements constituted by nano-dopes and nano-size impurity particles which first, second and third phase elements form a three-dimensional superconducting nano structure of the sintered and stone-hardened ceramic lead and this solid material nano-structure includes a honeycomb-like three dimensional setting network in which the second and third phase elements constituted by nano size components are located in boundary areas of the nano-superconducting ceramic crystal grains, so as to cage and surround the latter.

It is believed to be clear that the patent to Topchiasvili, et al taken singly does not teach the new features of the present invention which are now defined in claim 13.

The Examiner further stated that one feature of the present invention, in particular the particle size of the ceramic oxide in the patent to Topchiashvili can be nano-size particles, because Takahashi discloses a coating

emulsion containing ceramic oxide nano-particles. The Examiner's statement about obviousness based on a combination suggested in this manner is not justified. The patent to Takahashi deals with a photoemulsion which has ceramic oxide nano-particles, and this of course can not be argued with. However, the photo emulsion of Takahashi has nothing to do with superconducting electric leads and ceramic processing or ceramic engineer resulting in solid ceramic products. Nano-particles are used not only in photoemulsions, but also in a great plurality of other applications, and it is completely illogical to suggest that once nano particles are used in photo emulsions it is obvious to use them in all other products in different scientific and engineering areas, in different arts, and in different products, for example in a superconducting ceramic lead. The Examiner's argumentation about density increase due to the finer particles has nothing to do with apparent density of full-dense sintered or thermochemically converted integral stone-solid material and nano-structured superconducting electric lead of the applicant's invention.

It is therefore believed to be absolutely unobvious to use the teaching of Takahashi of photo-emulsions for the sintered (solid) superconducting electric lead of the patent to Topchiashvili, et al, or for the superconducting electric lead of the present invention.

The Examiner further comments about a specific wire composition, its method of making, components process and process parameters as well as a utility of the wire having nothing to do with the applicant's invention since the present invention deals with a final product, namely a superconducting electric lead.

In view of the Topchiasvilli patent and Holloway and Dorris patents the Examiner made comments about specific raw material compositions, methods of components processing, and process parameters. All of these nothing to do with the applicant's invention since the present invention deals with a final solid matter product and its specific nano-structural features that control and improve superconducting and mechanical properties, reliability, and durability of the invented sintered superconducting ceramic electric lead, and these nano-structural material characteristics are not disclosed in any of the above and other references, that do not have any hint or suggestion for the nano-structural features of the inventive superconductive ceramic electric lead.

The other references applied in combination with the above discussed references do not add any pertinent features which can be considered as similar to the present invention as defined in claim 13.

It is therefore respectfully submitted that the obviousness rejections applied by the Examiner.

The above mentioned specific new features which are now defined in claim 13, with their interjunction, with their interaction, with their interdependence and interinfluence, provide for the highly advantageous results which have never been achieved before in the industry that, as explained herein above, desperately needs a superconducting ceramic electric lead with highly advantageous properties achieved by the present invention.

In particular, the superconducting ceramic electric lead of the present invention has exceptionally high quality assurance which provides outstandingly long service life with maintenance of its complete superconducting electrical and required mechanical properties.

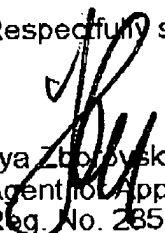
It is respectfully submitted that claim 13 should be considered as patentably distinguishing over the art and should be allowed.

As for the dependent claims, these claims depend on claim 13, they share its presumably allowable features, and therefore it is respectfully submitted that they should be allowed.

Reconsideration and allowance of the present application is most respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place this case in condition for final allowance, then it is respectfully requested that such amendments or corrections be carried out by Examiner's Amendment, and the case be passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance; he is invited to telephone the undersigned (at 631-243-3818).

Respectfully submitted;


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